Aug1723

Thursday, August 17, 2023 6:00 PM

Welcome to EE5703 AY 23/24.

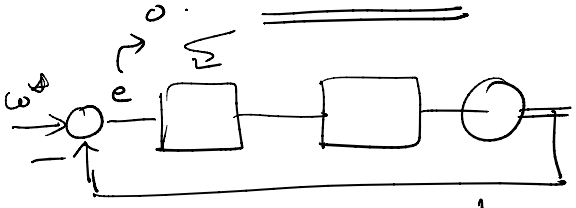
Today we will find answers to this questions

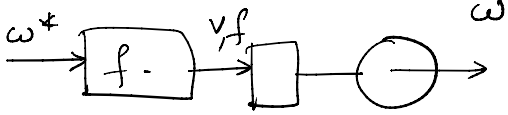
1. what we will cover in EE5703
2. Why we will study in a particular way

....

3. Assessment distribution....
4. Project.

Introduction ✓.



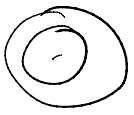


✓open loop control
✓feed forward
Steering —

✓closed loop control
✓feed back control.

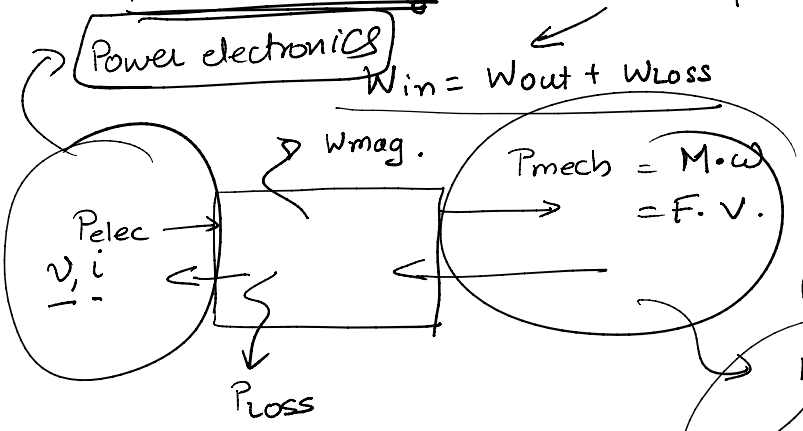
regulation - r*-r=e →.

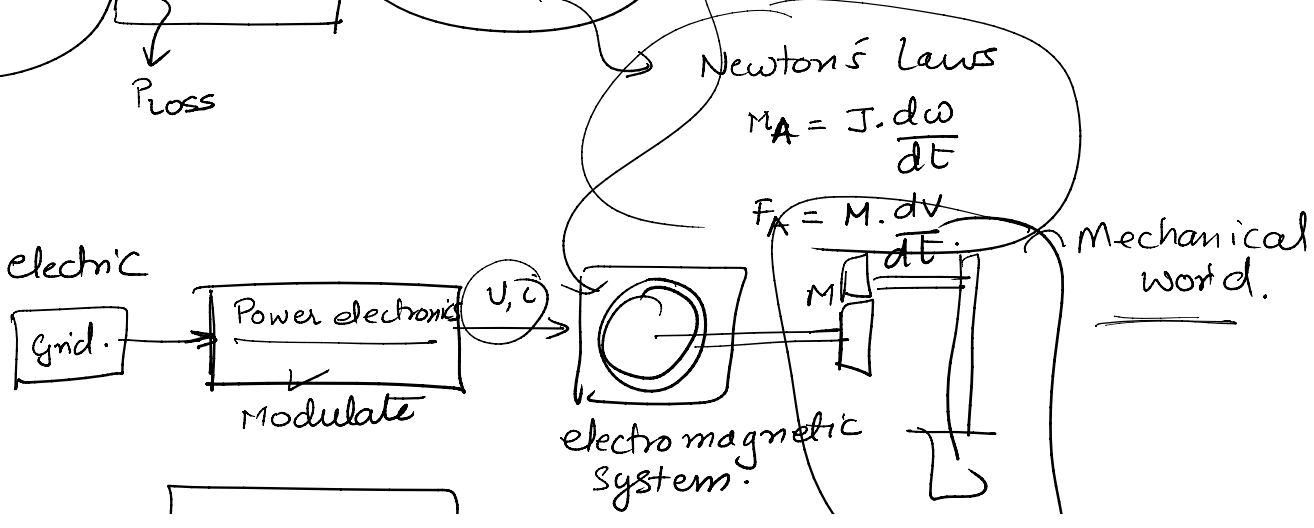
Stepper motor
↳ open loop control



— How to study? - First principles → Circuit laws
↳ Thevenins

→ electromagnetic principles
1. Faraday's law....
$v = \frac{d\lambda}{dt}$ ← flux linkages.
2. Lorentz force.
$F = i \times B \ell$.





electro magnetic system.

Mechatronics

Modelling ⟷ Analyse — performance.

Computers

Engineering principles — First principles.

Model. → y

Real.

transparent

$T\frac{dx}{dt} + x = y$

$\frac{dx}{dt} = 0$.

Epochs

Black Box

Taylor series - - -

Analysis

① Steady-state - Static.

$y = f(x)$ $V = iR$ $V = iR + jX$.

linearization

non-linear → linear model

② Dynamic Model. → ODE

$\dot{x} = Ax + Bu$.

$y = Cx + Du$.

piecewise linear

What is non-linear?

Super position

$y = ax$

$y_1 = ax_1$

$y_2 = ax_2$

$y_1 + y_2 = a(x_1 + x_2)$

Python Anaconda dist.